

IN THE DRAWINGS:

A copy of Fig. 1 is enclosed wherein there is indicated in red "Diamond Switch" as a designation for block 225, and block 212 has been amended to add "Changing Rate" to its title, both additions being supported by the specification in a discussion of the blocks involved.

IN THE CLAIMS:

Claim 12 (amended). A wideband electromagnetic system comprising:

generating means for generating stepped [wave] amplitude signals;

transmitting means responsive to said stepped [wave] amplitude signals and including a wideband antenna for transmitting wideband burst signals, said antenna comprising at least one dipole and wherein each dipole is substantially of the same length and includes two generally triangular elements characterized by having a like broad base and narrow apex; and

[a wideband antenna coupled to a medium through which said burst signals propagate, and said wideband antenna comprising at least one dipole in turn comprising two elements, each element characterized by having a broad base and narrow apex, and wherein the bases are parallel and adjacent; and]

receiving means [including coupling means connected across said elements of said wideband antenna] for detecting signals derived from [said] transmitted burst signals.

*Cont.*  
Claim 13 (amended). A system as set forth in claim 12 wherein said receiving means comprises coherent detection means responsive to times of initiation of said burst signals [for coherently detecting said signals and, separately, integrating a plurality of coherently detected signals and thereby indicating the existence of a target].

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Claim 15 (amended). A wideband transmission system comprising:

generating means for generating spaced, generally stepped, [wave] amplitude signals;

transmitting means including a broad frequency band radiator [and,] responsive to said stepped wave signals, for transmitting wideband burst signals into a selected medium; and

receiving means responsive to signals derived from transmitted said burst signals and to times of initiation of said burst signals for coherently detecting said burst signals and, (1) separately, integrating a plurality of coherently detected signals and (2) integrating the resultant plurality of integrated signals and thereby deriving an intelligence signal.

Add the following claims:

*3*  
Claim 23. A system as set forth in claim 12 wherein said bases of a said dipole are adjacent.

*Cont.*  
Claim 24. A system as set forth in claim 15 wherein said receiving means includes a dipole antenna having a pair of triangular-shaped elements and received signals are coupled from said elements at points generally intersected by a straight line extending between apices of elements of said dipole.

pulse generating means for generating at least one set of discretely time spaced signals;

transmitter means including at least one impulse responsive dipole antenna;

switching means positioned adjacent to and generally directly coupled through electrical resistance between poles of said dipole antenna to each said antenna and responsive to said pulse generating means for abruptly switching between different voltage states applied across poles of each said impulse responsive dipole antenna.

Claim 26. A system as set forth in claim 25 wherein said impulse responsive dipole antenna is planar and said system includes a plurality of said dipoles generally lying in a plane.

Claim 27. A system as set forth in claim 26 further comprising a reflector positioned in a parallel plane to that of said plurality of dipole antennas.

Claim 28. A system as set forth in claim 25 wherein a said dipole antenna comprises a pair of elements, each of which, when viewed normal to the dipole length in at least one plane, appears triangular and wherein the bases of said elements are parallel to and closely adjacent to a common line and to which bases said switching means are coupled.

Claim 29. A time domain radio receiver for receiving time spaced monocyclic electromagnetic signal bursts comprising:

timing means responsive to the transmission of said bursts for delayed generation of at least one discretely delayed

template signal following each signal burst, a said template signal being of at least one polarity;

receiving means for receiving a plurality of said time spaced electromagnetic signal bursts from a medium through which said burst signals are propagated and providing electrical output in response thereto;

multiplier means responsive to outputs of said receiving means and said template signals for multiplying each said output and each said template signal to produce a discrete product signal;

integration means responsive to a plurality of the said product signals for integrating product signals; and

output means responsive to said timing means and said integration means for indicating a factor of range of travel of a said burst signal.

Claim 30. A system as set forth in claim 29 wherein said integration means includes (1) means for, during the presence of a said template signal, individually integrating each product signal and (2) integrating the resulting plurality of integrated product signals upon there being burst signals present corresponding to a selected delay.

Claim 31. A system as set forth in claim 28 wherein the base and length of each element are substantially equal.

Claim 32. A system as set forth in claim 31 wherein said base and length are each approximately 4 1/2 inches.

Claim 33. A system as set forth in claim 12 wherein said stepped amplitude signals are applied to said two elements at

points generally intercepted by a line between the apices of the elements.

Claim 34. A monocyclic transmitter comprising:

pulse generating means for generating, at a changing rate, stepped amplitude signals;

transmitter means including at least one impulse responsive antenna for transmitting a signal burst responsive to switched electrical voltages; and

switching means coupled to each said antenna and responsive to said pulse generating means for abruptly switching between different voltage states supplied to said antenna.

Claim 35. A system as set forth in claim 34 wherein a said impulse responsive antenna comprises at least one planar dipole.

Claim 36. A system as set forth in claim 35 further comprising a plurality of said planar dipoles as an antenna array and including a reflector positioned in a parallel plane to that of said plurality of dipoles.

Claim 37. A system as set forth in claim 36 wherein said dipole antenna comprises a pair of elements, each of which, when viewed normal to the dipole length in at least one planar, appears triangular and wherein the bases of said elements are parallel to, and closely adjacent to, a common line and to which bases said switching means are coupled.

Claim 38. A system as set forth in claim 34 wherein said switching means comprises a diamond switch.